```
? show files;ds
File    6:NTIS 1964-2004/May W1
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File  434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
        (c) 1998 Inst for Sci Info


Set     Items    Description
S1    6858663    FORMULA?? OR MATHEMATICAL OR EXPRESSION OR ALGORITHM OR EQ-
                 UATION?? OR MATH OR COMPUTATION
S2      15612    VOLATILITY
S3      42715    SETTLEMENT
S4    5981691    VARIABLE?? OR PARAMETER?? OR VALUE??
S5       7600    (TRADE OR TRADING OR EXCHANGE OR EXCHANGING)(2N)(PERIOD?? -
                 OR TIME OR TIMES OR DAY OR DAYS OR WEEK OR WEEKS OR MONTH OR -
                 MONTHS OR DATE?? OR HOUR?? OR MINUTE??)
S6      14877    (HIGH OR LOW OR MAXIMUM OR MINIMUM OR HIGHEST OR LOWEST OR
                 HIGHER OR LOWER)(2W)(PRICE??) OR PRICE()POINTS
S7        865    (OPENING OR BEGINNING OR STARTING OR INITIAL OR FIRST OR S-
                 TART)(2W)PRICE??
S8       2297    S1 AND S2
S9         70    (S3 OR CONTRACT? ?) AND S8
S10        32    (S4:S7) AND S9
S11        41    S1(S)S2(S)(S3 OR CONTRACT? ?)(S)S8
S12        15    S1(S)S2(S)(S3 OR CONTRACT? ?)(S)(S4:S7)
S13         2    S1(S)S2(S)(S3 OR CONTRACT? ? OR CONTRACTUAL)(S)S4(S)(S5:S7)
S14         0    S13 NOT PY>2000
S15        15    S12 OR S13
S16         6    S15 NOT PY>2000
S17        15    S15 NOT AD>=20000215
S18        70    S9:S17
S19        40    S18 NOT PY>2000
S20        27    RD (unique items)
? t20/3,k/all
```

20/3,K/1   (Item 1 from file: 6)
DIALOG(R)File   6:NTIS
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0888469 NTIS Accession Number: DOE/PC/30295-1/XAB
  **Kinetics of NO/sub X/ Formation During Early Stages of Pulverized Coal
Combustion. First Quarterly Report, 26 September 1980-28 December 1980**

Krill, W. V. ; Chu, E. K. ; Tong, H.
Acurex Corp., Mountain View, CA. Energy and Environmental Div.
Corp. Source Codes: 053992002; 9508813
Sponsor: Department of Energy, Washington, DC.
30 Jan 81   18p
Languages: English
Journal Announcement: GRAI8115; NSA0600
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NTIS Prices: PC A02/MF A01

The first quarter results under the Department of Energy **Contract** DE-AC22-80PC-30295 are reported. A stirred reactor technique to simulate the early combustion...
...Descriptors: Nitrogen oxides; Chemical reaction kinetics; Chemical reaction yield; Chemical reactions; Combustion; Decomposition; Fuel-air ratio; **Mathematical** models; Oxidation; Pyrolysis; **Volatility**

20/3,K/2   (Item 1 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

05632913   E.I. No: EIP00085295842
  Title: **High-resolution path-integral development of financial options**
  Author: Ingber, Lester
  Corporate Source: Lester Ingber Research, Chicago, IL, USA
  Source: Physica A: Statistical Mechanics and its Applications v 283 n 3 Aug 2000. p 529-558
  Publication Year: 2000
  CODEN: PHYADX   ISSN: 0378-4371
  Language: English

  ...Abstract: form of the diffusion of these systems and also consider multi-factor models including stochastic **volatility** . Daily Eurodollar futures prices and implied volatilities are fit to determine exponents of functional behavior...

...optimization, adaptive simulated annealing (ASA), to generate tight fits across moving time windows of Eurodollar **contracts** . These short-time fitted distributions are then developed into long-time distributions using a robust non-Monte Carlo path-integral **algorithm** , PATHINT, to generate prices and derivatives commonly used by option traders. (Author abstract) 60 Refs.
  Descriptors: Sales; **Mathematical** models; Random processes; Algorithms; Curve fitting; Simulated annealing; Probability distributions; Algebra; Statistical mechanics
  Identifiers: Financial options; Black-Scholes theory; Option pricing; Stochastic **volatility** ; Eurodollar; Adaptive simulated annealing; Non Monte Carlo path integral **algorithm** ; Prices

20/3,K/3   (Item 2 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
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05569612   E.I. No: EIP40055179356
  Title: **Implied** volatility **functions: a reprise**

Author: Rosenberg, Joshua V.
Corporate Source: NYU - Stern Sch of Business, New York, NY, USA
Conference Title: IEEE/IAFE/INFORNS 2000: 6th Conference on Computational Intelligence for Financial Engineering (CIFEr)
Conference Location: New York, NY, USA Conference Date: 19000326-19000328
E.I. Conference No.: 56757
Source: IEEE/IAFE Conference on Computational Intelligence for Financial Engineering, Proceedings (CIFEr) 2000. IEEE, Piscataway, NJ, USA. p 12-14
Publication Year: 2000
CODEN: 002304   ISBN: 0-7803-6429-5
Language: English

Title: Implied volatility **functions: a reprise**

Abstract: An attempt is made to investigate a class of dynamic implied **volatility** function models (DIVF). This class of models separates the time-invariant implied **volatility** function from the stochastic state **variables** which drive changes in the individual implied volatilities. Empirical results using the full history of...
...options indicate that a DIVF model can generate substantially improved pricing performance over static implied **volatility** function models and benchmark pricing models.
Descriptors: Computer simulation; Costs; Marketing; Sales; Risk management; Stability; Finance; **Contracts ; Mathematical models**
Identifiers: Implied **volatility** functions; Deterministic **volatility** models; Black-Scholes model; Standard deviation; Dynamic implied **volatility** function

20/3,K/4   (Item 3 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
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04802072   E.I. No: EIP97083786134
   Title: LPG consumption in the long term: Supply, pricing demand with particular reference to the petrochemical sector
   Author: Shammas, P.
   Corporate Source: APS Energy Group, PO Box 3896, Nicosia, Cyprus
   Source: Energy Exploration & Exploitation v 14 n 2 1996. p 133-142
   Publication Year: 1996
   CODEN: EEEXDU   ISSN: 0144-5987
   Language: English

   ...Abstract: content of motor gasoline. Pricing will remain volatile as a result of crude oil price **volatility** , variations in the winter weather in the Northern Hemisphere, and as a result of competition...

   ...role in the pricing of LPG, and since Oct. 1, 1994, has introduced a new ' **contract** price ' (CP) **formula** which in winter months has raised its revenue by up to dollar 30/tonne. Its move has upset most of its clients and some of them have cancelled their **contracts** . Demand for LPG in OECD countries will continue to show steady growth. The increase in...

20/3,K/5   (Item 4 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

04597131   E.I. No: EIP97013494172
   Title: Options: The value **of flexibilities in long term uranium**

contracts
  Author: Major-Sosias, Mari Angeles
  Conference Title: Proceedings of the 1996 21st Annual Symposium of the
Uranium Institute
  Conference Location: London, UK   Conference Date: 199609
  E.I. Conference No.: 45841
  Source: Uranium and Nuclear Energy: 1996 Uranium and Nuclear Energy,
Proceedings of the International Symposium held by the Uranium Institute
1996. Uranium Inst, London, Engl. p 196-204
  Publication Year: 1996
  CODEN: UNENDZ   ISSN: 0265-430X
  Language: English

  Title: **Options: The** value **of flexibilities in long term uranium**
contracts
  Abstract: A brief review of long term option **contracts** in uranium
markets is presented. The Black-Scholes **formula** is applied to historical
uranium market data to calculate a theoretical **value** for the
flexibilities in long term uranium **contracts** . The **formula** can also be
used to calculate the **volatility** given the price of uranium and the loan
rate. However, the **formula** has some limitations. It is unable to
effectively adjust option premiums when the exercise price...

...uranium industry. Thus, the calculated option premium should only be
regarded as an interesting theoretical **value** . 8 Refs.
  Descriptors: Uranium; **Contracts** ; Industrial economics; Marketing;
Energy policy; Uranium compounds; Purchasing
  Identifiers: Black-Scholes option pricing **formula** ; Uranium market data;
Option valuation

  20/3,K/6   (Item 5 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
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04578054   E.I. No: EIP96073247995
  Title: Interest rate futures: estimation of volatility   parameters **in
an arbitrage-free framework**
  Author: Bhar, Ramaprasad; Chiarella, Carl
  Corporate Source: Univ of Technology, Sydney, Aust
  Conference Title: Proceedings of the IEEE/IAFE 1996 Conference on
Computational Intelligence for Financial Engineering, CIFEr
  Conference Location: New York, NY, USA Conference Date:
19960324-19960326
  E.I. Conference No.: 44981
  Source: IEEE/IAFE Conference on Computational Intelligence for Financial
Engineering, Proceedings (CIFEr) 1996. IEEE, Piscataway, NJ, USA. p 168-182
  Publication Year: 1996
  CODEN: 002304
  Language: English

  Title: Interest rate futures: estimation of volatility   parameters **in
an arbitrage-free framework**
  Abstract: Hedging interest rate exposures using interest rate futures
contracts requires some knowledge of the **volatility** function of the
interset rates. Use of historical data as well as interset rate options
like caps and swaptions to estimate this **volatility** function, have been
proposed in the literature. In this paper the interest rate futures price
is modelled within an arbitrage-free framework for a **volatility** function
which includes a stochastic **variable** , the instantaneous spot interest

rate. The resulting system is expressed in a state space form...

...solved using extended Kalman filter. The technique is applied to short-term interest rate futures **contracts** trading on the Sydney Futures Exchange as well as on the Tokyo International Financial Futures...

...model and the bootstrap resampling technique is used to obtain small sample properties of the **parameters** of the **volatility** function. (Author abstract) Refs.
   Descriptors: Finance; **Parameter** estimation; Random processes; State space methods; Kalman filtering; Marketing; **Mathematical** models; Economics
   Identifiers: Interest rate; **Volatility** function; Arbitrage free framework; Marking to market; Bootstrap resampling technique; Transaction costs

20/3,K/7   (Item 6 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

03573991   E.I. Monthly No: EIM9303-014104
   Title: **Analysis of construction price and cost movements.**
   Author: Akintoye, S. Akintola
   Corporate Source: Univ of Salford, Salford, Engl
   Conference Title: Proceedings of the 36th Annual Transactions of the American Association of Cost Engineers - AACE
   Conference Location: Orlando, FL, USA   Conference Date: 19920628
   E.I. Conference No.: 16979
   Source: Transactions of the American Association of Cost Engineers v 2. Publ by AACE, Morgantown, WV, USA. p V.1.1-V.1.7
   Publication Year: 1992
   CODEN: AACTAZ   ISSN: 0065-7158   ISBN: 0-930284-49-6
   Language: English

   ...Abstract: in the future. This paper analyzes the movements of these indexes in terms of their **volatility** and annualized growth rate in relation to UK trade cycle. The paper also describes the development of a single structural form **equation** of construction price. 14 Refs.
   Descriptors: CONSTRUCTION INDUSTRY; COSTS; **CONTRACTS** ; PROJECT MANAGEMENT; ECONOMICS; TECHNOLOGICAL FORECASTING; REGRESSION ANALYSIS

20/3,K/8   (Item 1 from file: 34)
DIALOG(R)File   34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

08661868   Genuine Article#: 313TU   No. References: 66
**Title: Statistical mechanics of financial markets: Exponential
    modifications to Black-Scholes**
Author(s): Ingber L (REPRINT) ; Wilson JK
Corporate Source: DRW INVESTMENTS LLC,CHICAGO MERCANTILE EXCHANGE CTR, 30 S
    WACKER DR, STE 1516/CHICAGO//IL/60606 (REPRINT)
Journal: MATHEMATICAL AND COMPUTER MODELLING, 2000, V31, N8-9 (APR-MAY), P
    167-192
ISSN: 0895-7177   Publication date: 20000400
Publisher: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE,
    KIDLINGTON, OXFORD OX5 1GB, ENGLAND
Language: English   Document Type: ARTICLE   (ABSTRACT AVAILABLE)

...Abstract: functional form of the diffusion of these systems and also
consider multifactor models including stochastic **volatility** . We use a
previous development of statistical mechanics of financial markets to
model these issues...

...optimization, Adaptive Simulated Annealing (ASA), to generate tight fits
across moving time windows of Eurodollar **contracts** . These short-time
fitted distributions are then developed into long-time distributions
using a robust non-Monte Carlo path-integral **algorithm** , PATHINT, to
generate prices and derivatives commonly used by option traders. The
results of our...

...for the one-factor and two-factor models. There still are significant
differences in risk **parameters** , partial derivatives, using more
sophisticated models, especially for out-of-the-money options. (C) 2000
...

...Identifiers--PATH-INTEGRAL EVOLUTION; FOKKER-PLANCK **EQUATIONS** ;
SHORT-TERM-MEMORY; NEOCORTICAL INTERACTIONS; NUMERICAL EVALUATION;
MODEL; SYSTEMS; NOISE

20/3,K/9   (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

08655570   Genuine Article#: 313BC   No. References: 24
Title: Lognormality of rates and term structure models
Author(s): Goldys B; Musiela M; Sondermann D
Corporate Source: UNIV NEW S WALES,SCH MATH/KENSINGTON/NSW 2033/AUSTRALIA/;
    UNIV BONN,DEPT ECON/D-5300 BONN//GERMANY/
Journal: STOCHASTIC ANALYSIS AND APPLICATIONS, 2000, V18, N3 (MAY), P
    375-396
ISSN: 0736-2994   Publication date: 20000500
Publisher: MARCEL DEKKER INC, 270 MADISON AVE, NEW YORK, NY 10016
Language: English   Document Type: ARTICLE   (ABSTRACT AVAILABLE)

Abstract: A term structure model with lognormal type **volatility** structure
is proposed. The Heath, Jarrow and Morton (HJM) framework, coupled with
the theory of stochastic evolution **equations** in infinite dimensions,
is used to show that the resulting instantaneous rates are well defined
...

...and hedge caps, swaptions and other interest rate and currency
derivatives including the Eurodollar futures **contract** , which requires
integrability of one over zero coupon bond. This extends results
obtained by Sandmann...

20/3,K/10   (Item 3 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

06310991   Genuine Article#: YH659   No. References: 25
Title: A continuity correction for discrete barrier options
Author(s): Broadie M (REPRINT) ; Glasserman P; Kou S
Corporate Source: COLUMBIA BUSINESS SCH,415 URIS HALL/NEW YORK//NY/10027
    (REPRINT); UNIV MICHIGAN,DEPT STAT/ANN ARBOR//MI/48109
Journal: MATHEMATICAL FINANCE, 1997, V7, N4 (OCT), P325-349
ISSN: 0960-1627   Publication date: 19971000
Publisher: BLACKWELL PUBLISHERS, 350 MAIN STREET, STE 6, CAMBRIDGE, MA

02148-5023
Language: English   Document Type: ARTICLE   (ABSTRACT AVAILABLE)

...Abstract: assumption, the option can often be priced in closed form.
Many (if not most) real **contracts** with barrier provisions specify
discrete monitoring instants; there are essentially no **formulas** for
pricing these options, and even numerical pricing is difficult. We
show, however, that discrete barrier options can be priced with
remarkable accuracy using continuous barrier **formulas** by applying a
simple continuity correction to the barrier Tbe correction shifts the
barrier away...

...beta sigma root Delta t), where beta approximate to 0.5826, sigma is the
underlying **volatility** , and Delta t is the rime between monitoring
instants. The correction is justified both theoretically...
Research Fronts: 95-2782 002   (OPTION PRICING; STOCK RETURN **VOLATILITY** ;
STOCHASTIC INTEREST-RATES; CONTINGENT CLAIMS MODEL; NUMERICAL
VALUATION)
  95-0803 001   (OCCUPATIONAL ASTHMA; PEAK EXPIRATORY FLOWS; MINIMAL TIME
  CHANGE DETECTION **ALGORITHM** FOR RECONFIGURABLE FLIGHT CONTROL-SYSTEMS)
  95-8630 001   (FIXED-WIDTH SEQUENTIAL CONFIDENCE-INTERVAL; POSTERIOR
  DISTRIBUTIONS FOR A 2- **PARAMETER** EXPONENTIAL FAMILY; SAMPLE-SIZE
  FORMULAS)

20/3,K/11   (Item 4 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

05991644   Genuine Article#: XM378   No. References: 26
Title: The valuation of American options on multiple assets
Author(s): Broadie M (REPRINT) ; Detemple J
Corporate Source: COLUMBIA UNIV,GRAD SCH BUSINESS/NEW YORK//NY/10027
    (REPRINT); MCGILL UNIV,FAC MANAGEMENT/MONTREAL/PQ H3A 2T5/CANADA/
Journal: MATHEMATICAL FINANCE, 1997, V7, N3 (JUL), P241-286
ISSN: 0960-1627   Publication date: 19970700
Publisher: BLACKWELL SCIENCE INC, 350 MAIN ST, MALDEN, MA 02148
Language: English   Document Type: ARTICLE   (ABSTRACT AVAILABLE)

Abstract: In this paper we provide valuation **formulas** for several types
of American options on two or more assets. Our contribution is twofold.
First, we characterize the optimal exercise regions and provide
valuation **formulas** for a number of American option **contracts** on
multiple underlying assets with convex payoff functions. Examples
include options on the maximum of...

...options on the arithmetic average of two assets. Second, we derive
results for American option **contracts** with nonconvex payoffs, such as
American capped exchange options. For this option we explicitly
identify...
...investment under uncertainty. A specialization of one of our models also
provides a new representation **formula** for an American capped option
on a single underlying asset.
Research Fronts: 95-0636 001   (HOMOGENIZATION OF THE NAVIER-STOKES
  EQUATIONS ; MICROSTRESSES IN A THICK NONSYMMETRICAL HETEROGENEOUS
  PLATE; 2-SCALE CONVERGENCE; FRACTIONAL STEP METHOD)
  95-2782 001   (OPTION PRICING; STOCK RETURN **VOLATILITY** ; STOCHASTIC
  INTEREST-RATES; CONTINGENT CLAIMS MODEL; NUMERICAL VALUATION)
  95-5138 001   (ASSET PROFILES FOR TECHNOLOGICAL...

20/3,K/12   (Item 5 from file: 34)
DIALOG(R)File   34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

05922042   Genuine Article#: XG481   No. References: 29
Title: Currency option pricing with mean reversion and uncovered interest
    parity: A revision of the Garman-Kohlhagen model
Author(s): Ekvall N; Jennergren LP (REPRINT) ; Naslund B
Corporate Source: STOCKHOLM SCH ECON,BOX 6501/S-11383 STOCKHOLM//SWEDEN/
    (REPRINT); STOCKHOLM SCH ECON,/S-11383 STOCKHOLM//SWEDEN/; SVENSKA
    HANDELSBANKEN,/S-10670 STOCKHOLM//SWEDEN/
Journal: EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, 1997, V100, N1 (JUL 1)
, P41-59
ISSN: 0377-2217   Publication date: 19970701
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English   Document Type: ARTICLE   (ABSTRACT AVAILABLE)

...Abstract: the logarithm of the exchange rate through Uncovered Interest
    Parity. Under these assumptions, we derive **formulas** for the **value**
    of a European currency option, from the point of view of both domestic
    and foreign investors. We also derive **formulas** for options on forward
    and futures **contracts** . We compare option **values** computed by means
    of the Garman-Kohlhagen model with corresponding results from our
    model. It...
Research Fronts: 95-2782 004   (OPTION PRICING; STOCK RETURN **VOLATILITY** ;
    STOCHASTIC INTEREST-RATES; CONTINGENT CLAIMS MODEL; NUMERICAL
    VALUATION)
  95-5194 001   (EXCHANGE-RATE DYNAMICS; INTERNATIONAL...

20/3,K/13   (Item 1 from file: 98)
DIALOG(R)File   98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.

04355597   H.W. WILSON RECORD NUMBER: BGSA00105597   (USE FORMAT 7 FOR
FULLTEXT)
The sources, fate, and toxicity of chemical warfare agent degradation
  products.
AUGMENTED TITLE: review
Munro, Nancy B
Talmage, Sylvia S; Griffin, Guy D
Environmental Health Perspectives (Environ Health Perspect) v. 107 no12
  (Dec. 1999) p. 933-74
SPECIAL FEATURES: bibl il   ISSN: 0091-6765
 LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 38930

  (USE FORMAT 7 FOR FULLTEXT)

TEXT:
...   toxic by the oral, inhalation, and dermal routes, respectively (4).
Compounds with LD50 or LC50 **values** of 50-500 mg/kg, 50-500 mg/m3, and
200-500 mg/kg for the respective routes are considered moderately toxic,
and compounds with **values** higher than these ranges are considered to be
of a low order of toxicity. Toxic **values** for chronic exposures by the
respective categories and routes of exposure are generally an order of
magnitude lower. For aquatic organisms, LC50 **values** of < 1 mg/L and < 0.1
mg/L are considered highly acutely and chronically...chemical agent HD

(shown below), which is a distilled or purified form of sulfur mustard.

{ **Formula** omitted}
    HT (shown below) was made by an older manufacturing process and contains about 60...

...T bis 2-(2-chloroethylthio)ethyl ether , and a variety of sulfur contaminants and impurities.
    { **Formula** omitted}
    HT may have many of the same toxic effects as HD. However, very few... solutions were irradiated by sunlight for 14 days; TDG was resistant to hydrolysis at pH **values** of 4, 7, and 11 over a 96-hr period (45). Burrows (46) suggested that...

...soil or sediment; water solubility; and vapor pressure (Table 3). Small (8) cautioned that predictive **equations** for several of these **parameters** are empirical and deviations of an order of magnitude from measured **values** may occur. The physical properties for the parent sulfur mustard compound are included for comparison...

...g/L), as shown in Table 3. Vapor pressures are generally low and indicate little **volatility** , with the possible exception of the vinyl sulfides and 1,2-dichloroethane. Log Koc **values** of approximately [less than or equal to] 2 indicate that little soil adsorption will occur...

...initial concentration, was high for sulfur mustard and 1,2-dichloroethane, indicating little leaching, whereas **values** for 2-chloroethyl vinyl sulfide, divinyl sulfide, 2-hydroxyethyl vinyl sulfide, and 1,4-dithiane were intermediate, indicating a moderate amount of leaching. The **volatility** potential estimates (the loss of a compound from soil) ranged from practically none for TDG...and 1,2-dichloroethane rapidly volatilize. The other compounds were calculated to be of intermediate **volatility** .
    Two common degradation products of HD that persist in the environment are 1,4-oxathiane...Promotion and Preventive Medicine (APG, MD) has estimated reference dose (RfD) and reference concentration (RfC) **values** using the recent experimental subchronic rat NOAEL of 500 mg/kg/day and, for comparison...

...Inc., Rochester, NY). Using this method, Bausum et al. (190) estimated a rat oral LD50 **value** of 2,700 mg/kg and a rat chronic oral lowest lethal dose (LDLO) of...

...mg/kg/day from the subchronic oral toxicity study with rats (190). The recommended RfD **value** is 500 mg/kg/day.
    Hemisulfur mustard is an intermediate formed in the course of...

...bis(beta-hydroxyethyl)sulfonium ethyl sulfide dichloride (HD-TDG-TDG) (68). An intraperitoneal (ip) LD50 **value** of 50 mg/kg in mice was reported in the literature (68) (Table 4); Anslow...

...vinyl sulfide or for 2-hydroxyethyl vinyl sulfide. Ishidate et al. (71) reported an LDLO **value** of 150 mg/kg in rats for mustard sulfoxide administered by an unspecified route. No...

...exposure of cats and rabbits to mustard sulfone for 10 min resulted in an LCLO **value** of 1,430 mg/m3 for both species (72). Data were unavailable for other directly relevant routes of exposure, but Anslow et al. (67) reported subcutaneous (sc) LD50 **values** of 35 and 50 mg/kg for mice and rats, respectively, or approximately 0.1 LDLO **values** are available.

Historical **values** average 100 mg/kg except for the oral LDLO of 50 mg/kg for vinyl sulfoxide in mice (75). Chronic toxicity data are unavailable for these substances. The oral LD50 **value** for divinyl sulfone in rats of 32 mg/kg (76) is just half the toxicity...

...for 1,4-dithiane are very limited but suggest low acute lethality; the oral LD50 **value** for rats is about 3.5 g/kg (80) (Table 4). Mutagenicity tests in Salmonella...

...understood.
    The acute toxicity of 1,4-oxathiane also is relatively low, with oral LD50 **values** in rats of approximately 3 g/kg (80,81) (Table 4) and an inhalation LCLO...

...2-chloroethylthio)ethane (compound Q) (99). Robinson (99) estimated that the human LC50-time relationship **value** for agent T (a vesicant) for inhalation exposure was 400 mg/min/m3. This was probably based on animal data for HT; **values** for HT exposure ranged from 100-200 mg/min/m3 for dogs to 3,000...

...min/m3 for guinea pigs and rabbits (191). Robinson (99) also estimated that the corresponding **value** for compound Q in humans was 300 mg/min/m3; its action on the lungs resembled that of phosgene. The LC50 **values** for 2-min exposures to compound Q for several mammalian species range from 36 mg/m3 in mice to 137 mg/m3 in hamsters, with the **value** for dogs at 90 mg/m3 (100). Another impurity, Q-sulfonium, which forms a residue...

...sperm abnormalities in mice (193). The American Conference of Governmental Industrial Hygienists (ACGIH) threshold-limit- **value** time-weighted average (TLV-TWA) for chloroform is 10 ppm (49 mg/m3) (196), whereas...of exposure including both oral and inhalation. Estimates of oral toxicity in terms of LDLO **values** in humans range from 286 to 714 mg/kg. It is a mild skin irritant...

...Tables 4 and 5). It is moderately toxic on acute exposure, with an oral LD50 **value** in rats of 250 mg/kg (124) and an inhalation LC50 **value** in mice of 4,500 mg/m3 (127) (Table 4). 1,1,2,2-Tetrachloroethane...

...different microtoxicologic tests detected no toxicity in the resulting medium (53).
    The generally low Kow **values** (< 2) for mustard degradation products listed in Table 3 indicate a low potential to partition...11).
    Formation of degradation products. On the basis of chemical and physical properties such as **volatility** and susceptibility to hydrolysis (Table 1), HN3 is considered environmentally persistent, whereas HN1 and HN2...
...25[degree]C. HN1 and HN2 have slightly higher vapor pressures than HN3. Because the **volatility** of HN3 is limited (approximately 100 mg/m3 at 20[degree]C), dangerous concentrations will...

...degree]C and 3,580 mg/m3 at 25[degree]C, respectively (15). The low **values** of 8.5 X 10-8 atm X m3/mol and 3 X 10-7...

...degraded.
    As noted, the nitrogen mustards are not very soluble in water; Franke (7) reported **values** of approximately 0.16 g/L for HN1 and HN3 and 12 g/L for...

...intermediates are highly reactive and can alkylate biologic macromolecules (12).

On the basis of Kow **values** and using a regression-derived **equation** , the Syracuse Research Corporation (17, 18) estimated Koc **values** of 74 and 672 for HN2 and HN3, respectively. These **values** suggest high and low-to-medium mobility in soil for HN2 and HN3, respectively. The... chloride and 2-chloroethyl-bis(2-hydroxyethyl) ammonium chloride (Table 7). The mouse sc LD50 **value** for the latter compound is very close to that for HN3 2 mg/kg (228...or Lewisite oxide remains and the solution becomes 100[percent] 2-chlorovinyl arsonous acid (233):

{ **Formula** omitted}

Formation of Lewisite oxide (chlorovinyl arsenous oxide) and polymerized Lewisite oxide is essentially a dehydration reaction:

{ **Formula** omitted}

Once formed, Lewisite oxide and polymerized Lewisite oxide are relatively insoluble in water. Once...

...on Toxicology, Subcommittee on Chronic Reference Doses for Selected Chemical Warfare Agents, is considering this **value** and the existing RfD for inorganic arsenic, 0.3 mg/kg/day (238), as the Lewisite oxide.

We located only one toxicity **value** for the oxidation product 2-chlorovinyl arsonic acid. The rat oral LDLO of 50 mg...

...and contended that there is no persuasive evidence for such activity.

No OSHA or ACGIH **values** are available for 2-chlorovinyl arsenous oxide and 2-chlorovinyl arsonous acid. However, the OSHA...

...No, and chemical and physical properties of the nerve agents are listed in Table 1.

{ **Formula** omitted}

All of the nerve agents are viscous liquids; however, the V agents tend to...of degradation products (9,13,27,28,248) (Figure 2 and Table 12). At pH **values** of < 6 and > 10, cleavage of the P-S bond predominates, resulting in formation of...

...conditions, the half-life of VX was 31 min (253).

At neutral and alkaline pH **values** (7-10), the above pathway competes with dealkylation of the ethoxy group (cleavage of the...C), respectively. The data in Table 13 indicate a high water solubility and a low **volatility** .

MPA is stable in the environment because it is resistant to hydrolysis, photolysis, and thermal...

...and highly mobile in soils log Koc of 0.15; (8) . At environmentally relevant pH **values** (pH 5-9), MPA, EMPA, and ethyl methylphosphonothioic acid will be highly dissociated in water (263) (pKa **values** are presented in Table 13). Based on a low log Kow of -2.28, MPA...U.S. Army Center for Health Promotion and Preventive Medicine has estimated RfD and RfC **values** using data from structurally related compounds and/or QSAR using TOPKAT software (298). RfCs were...

...and RfCs for 25 degradation products, impurities, and stabilizers are listed in Table 16. These **values** are provisional and, therefore, subject to change.

EA 2192, one of the initial VX hydrolysis...

...having low-to-moderate acute lethality. Diisopropyl ethyl mercaptoamine, for example, has an ip LD50 **value** of 5 mg/kg in the mouse in the one available study (268) (Table 14...

...to-moderate toxicity as IMPA and MPA (Table 14). A QSAR-based rat oral

LD50 **value** of 65 mg/kg has been estimated for EMPA (298). Bausum et al. (190) estimated...

...Limited data for MPA suggest low oral toxicity in the rat and mouse, with LD50 **values** of [greater or equal to] 5,000 mg/kg Table 14; (273) . MPA is considered...

...MPA of 57 mg/kg/day on the QSAR-derived LOAEL. However, a preferred RfD **value** for MPA of 20 mg/kg/day was derived from the subchronic rat NOAEL of ...

...toxicity in mice exposed by ip injection (LD50 = 2,240 mg/kg), although only one **value** was located (Table 14).
    VX impurities such as O,S-dialkyl alkylphosphonothioate esters have an ...

...in humans (284). There is one systemic toxicity data point for the mouse, an LD50 **value** of 36 mg/kg by the iv route Table 14; (283) . This indicates acute iv...All of the nerve agents are highly toxic to aquatic organisms, with 96-hr LC50 **values** (the normal duration of fish toxicity tests) of < 1 mg/L. Weimer et al. (300...

...for MPA: 48-hr LC50 for Daphnia magna = 3,273 mg/L; 96-hr LC50 **values** for fathead minnows and bluegill sunfish = 10,617 and 12,380 mg/L, respectively; 14...

...a colorless to brownish liquid that gives off a colorless vapor. Its vapor pressure and **volatility** , 0.037 mmHg and 610 mg/m3 at 20[degree]C, respectively, are the lowest...at sufficient concentrations can be toxic or fatal by any route of exposure. Differences in **volatility** and water solubility result in varied degrees of persistence and variations in the likelihood of...

...GA product found in soil, also displays moderate acute lethality, as judged by the one **value** we located. This is an intramuscular LD50 **value** of 440 mg/kg in the mouse (311) (Table 18). We found no other information ...

...been well characterized. It has a low acute toxicity as reflected by LD50 and LC50 **values** (Table 18). A more complete review of lethality and other toxicity information is presented in...not been established (331).
    Ecotoxicity. GA is highly toxic to aquatic organisms; 20-min LC50 **values** for green sunfish (Lepomis cyanellus), fathead minnows (Pimephales promelas), and goldfish (Carassius auratus) are 0...

...terrestrial organisms. Dimethylamine is moderately toxic to aquatic organisms, with 24- and 96-hr LC50 **values** for Daphnia magna and rainbow trout (Salmo gairdneri) of 50 and 120 mg/L, respectively (205). Triethyl phosphate is of low toxicity to Daphnia magna and fish, with LC50 **values** of > 100 mg/L (205). No terrestrial ecotoxicity data were located for GA or for...

...liquid. It is the most volatile of the G agents, with a vapor pressure and **volatility** of 2.10 mmHg and 22,000 mg/m3, respectively, thus making it largely a...low Koc of 12 (8) indicate a high potential for migration to groundwater. The pKa **values** of 1.98 (8) and 2.38 (260) indicate that IMPA will be in the...
...C-P bond) to methane and an inorganic phosphorus compound (336).
    Because of its low **volatility** , DIMP is not likely to be found in the air above contaminated areas; also, volatilization...the oral RfD, the U.S.

EPA derived an adult lifetime drinking water health advisory **value** of 0.7 mg/L (369,371). There is no standard for occupational exposure.
    The...

...in a number of species, including rat, mouse, dog, cow, mink, and duck. Oral LD50 **values** range from approximately 500 to 1,400 mg/kg in mammalian species; it is [similar...where hydrolysis is at a minimum, GB is highly toxic to fish species, with LC50 **values** of < 1 mg/L. For example, the 24-hr LC50 of GB for green sunfish...

...toxicity of DIMP to several wildlife species was studied by Aulerich et al. (334). LD50 **values** for adult mallard ducks, bobwhite quail, and mink were 1,490, 1,000, and 503...is a colorless liquid that gives off a colorless vapor with a fruity odor. Its **volatility**, intermediate between that of GA and GB, is high enough to make it a vapor...

...fourth the rate of water (13). The added thickeners retard evaporation. The vapor pressure and **volatility** at 25[degree]C are 0.40 mmHg and 3,900 mg/m3, respectively (11...volatile liquid that is highly irritating to the eyes and mucous membranes. Because of its **volatility**, it is considered a nonpersistent agent (11). CK and cyanide became the Allies' standard nonpersistent...

...11). No data were located on its fate in the atmosphere.
    Because of its extreme **volatility** and relatively rapid rate of hydrolysis in water, CK is not expected to persist in...

...NH4 Cl). The same products form at a slower rate at acidic and neutral pH **values** (9,401):
    { **Formula** omitted}
    CK from sources other than chemical agents may be present in natural waters. CK...is evidenced by data for its sodium salt, CNONa, which includes a mouse oral LDLO **value** of 4 mg/kg (240) and a rat oral LD50 **value** of 1,500 mg/kg (406). Intramuscularly, the rat LD50 **value** is 310 mg/kg (240), whereas the mouse ip LD50 **value** is similar, 260 mg/kg (406), again for the sodium salt of cyanic acid. No...

...Ecotoxicology. CK is extremely toxic to aquatic organisms, with 48-hr and 96-hr LC50 **values** for aquatic invertebrates and fish of < 150 mg/L (399,407). Toxicity may be attributable, at least partially, to the free cyanide (CN-) in solution. The 96-hr LC50 **values** of free cyanide for fathead minnows at pH **values** of 8.29 and 8.67 were 120 and 110 mg/L, respectively (408). No...does not penetrate the skin when applied in a water or alcohol solution, and its **volatility** is thought to be too low to pose an inhalation hazard. No ecotoxicity data were...managed by Lockheed Martin Energy Research Corporation for the U.S. Department of Energy under **contract** DE-AC05-96OR22464.
    This paper builds on previous summaries prepared at ORNL for the U...

...et al. (19), and Major (20).

    FOOTNOTES
a Hydrolysis limited by rate of solution.

    b **Values** for L, GA, and GB calculated from H = H* X RT where H* = ratio of the **volatility** and solubility (in milligrams per cubic meter), R = gas constant (8.2 X 10-5...National Laboratory, 1995.
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...in Female Transgenic TG.AC Mice (C93020-05). Prepared for the National Toxicology Program under **contract** N01-ES-15319. Research Triangle Park, NC:National Toxicology Program, 1997;1-11.

289. National...

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294. Pathco. Chairperson's...

...Female TG.AC Mice Administered by Skin Application. Prepared for the National Toxicology Program under **contract** N01- ...Toxicological and related data for VX, suggested breakdown products and additives; suggested RfD and RfC **values** . Aberdeen Proving Ground, MD:U.S. Army Center for Health Promotion and Preventive Medicine, 1998...

20/3,K/14   (Item 2 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

04047569   H.W. WILSON RECORD NUMBER: BGSA99047569   (USE FORMAT 7 FOR FULLTEXT)
Traditions of subversion and subversion of tradition: cultural criticism in Maidu clown performances.
Brightman, Robert
American Anthropologist (Am Anthropol) v. 101 no2 (June 1999) p. 272-87
SPECIAL FEATURES: bibl   ISSN: 0002-7294
 LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 12927

(USE FORMAT 7 FOR FULLTEXT)

TEXT:
...   supposed to embody all the finest qualities of Maidu culture"
(Jewell 1987:97). Additionally, distinct **formulaic** expressions formerly
referred to the recently deceased: "Hukum maidu wonem 'chief man died (a
yeponi...just as "creative chaos" is originary to "created cosmos," so
ceremonial transgression is productive of **valued** conventional states of
society and nature (1968:581). License and inversion are symbols of the...
are subversive, theirs is a painfully house-broken variety of subversion, a
tolerated licence with **parameters** narrowly specified in advance. Thus, a
more recent and recurrent theme has been skepticism regarding...

...everywhere locate cultural forms along continua between the axiological
and the debatable, the categorial and **variable** , the enjoined and the
proscribed, the extravagantly valorized and the disvalued. The meanings of
criticism...

...catalyzing engagement in revolutionary projects--thus the possibility
for critical perspectives on culture that find **expression** in subtler
reorientations of individuals' subjective relationships to the **valued**
forms of the collective life, manifesting themselves variously in
modalities of disenchantment, disengagement, and tolerated...cultural
convergence with Calvinist Protestantism. Among the Maidu's northern
neighbors the Atsugewi, the official **values** were proclaimed at sunrise by
the headman in "a stentorian harangue which could be heard...between 9000
and 6000 B.C., long before indices of increasing size and stability of
settlement appear in the region (Wallace 1978). From this perspective, the
bums might have appeared to...

...the bums' deviant subculture--their mobility, demand sharing,
improvidence, autonomy, and obliviousness to the transcendent **value** of
labor--suggests the institutional conventions of "immediate return"
foraging societies (Woodburn 1988). Compare, for...

...old woman's burden-basket," he may very well have been employing
conventional demand-sharing **formulas** in common use by Maidu bums.
Consider here the parallels with the Chaplinesque tramp or...grown up like
"wild trees in the mountains"--into respectable men and in neutralizing the
 volatility of psychotic bullies. Thus the possible parallel in Maiduan
social thought with an Hellenic optimism...can thus exhibit functional
meanings and effects, they can exhibit also a residual or emergent
volatility to which the older sociological and psychological
functionalisms were too often oblivious. In European historical...

...place. Thus both subversive clowns and quotidien bums could catalyze
critical reflection on such Maidu **values** as theocratic authority, labor,
sedentism, and surplus production. In this respect, the clown is subversive
...of Maidu society appear to have been eminently cognizant of the
debatable character of such **values** as industry, sacred authority, and
sedentism. Put another way--and recalling the Atsugewi bum who...

...authority were innate human follies and in which transience, indolence,
and autonomy represented the transcendent **values** to which wise men and
women aspired. Here we can perhaps observe what Terence Turner...

20/3,K/15   (Item 3 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text
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1530-Apr-0404:20 PM

The new science of finance.
Chance, Don M
Peterson, Pamela P
American Scientist (Am Sci) v. 87 no3 (May/June '99) p. 256-63
SPECIAL FEATURES: bibl il   ISSN: 0003-0996
 LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 5215

   (USE FORMAT 7 FOR FULLTEXT)

...ABSTRACT: links with the more traditional scientific disciplines. These
links are explored with reference to valuation, **volatility** , arbitrary
pricing theory, the capital asset pricing model, options, Brownian motion,
stochastic calculus, arbitrage, derivatives...

TEXT:
...   of knowledge about how human beings behave when faced with
uncertainty and translated it into **mathematical** descriptions of the way
people obtain and invest funds. With the advances in computers and...

...University of Cambridge, published a textbook in 1890 in which he
discussed how the present **value** of an anticipated future benefit could be
ascertained. His reasoning began with something that every...

...interest earned during one period and t is the number of elapsed
periods. Translating future **values** to the present day requires only that
(1 + r)t be placed in the denominator...

...Williams of Harvard University argued that the appropriate price for a
stock is the present **value** of all future dividends paid to its owner. In
1959, Myron Gordon (then at the...

...at a constant rate, which is indeed the pattern for many mature
companies. Some elementary **mathematical** manipulations of infinite series
will show that this assumption implies that the price of a...
...analysts still use the Gordon model or one of its many variants to
determine the **value** of certain stocks--although it is clearly not
appropriate for those many publicly traded companies...

...Formulations like the Gordon model use the discount rate to account both
for the time **value** of money and for the fact that the returns earned on
securities also depend on...

...in small, upstart companies typically subjects investors to more
variation from year to year--higher **volatility** --than owning stock in
large, stable corporations, but the small companies generally provide
higher returns.
     The analysis of how the price of various assets reflects **volatility**
has occupied many economists since Gordon first introduced his model.
William Sharpe (then at the...

...pricing model, their theory describes the returns on securities as
comprising compensation for the time **value** of money and for the risk
associated with overall movements of the stock market. In...fluctuating
cost of commodities sometimes to become negative), and so his methods for
determining the **value** of options were not reliable. Still, Bachelier's

mathematical description of erratically shifting commodity prices holds the distinction of having anticipated the formulation Einstein...

...the mathematics of Brownian motion at the Massachusetts Institute of Technology during the 1920s.
    The **equation** of Brownian motion that plays so important a role in option pricing relates the shift...

...expected rate of rise or fall of the price (symbolized by m) and its inherent **volatility** (s). The **equation** also involves the **variable** Z, which is a random process characterized by a normal, bell-shaped distribution with a mean of zero and a dispersion proportional to t. Specifically, the **equation** states that P = m Pt + s PZ, where m and s can be functions of both time and price.
    Physicists recognize the **variable** P as describing generalized Brownian motion, a formulation that is widely applicable to a variety of physical and financial phenomena. This **mathematical** description of Brownian motion belongs to the family of stochastic differential **equations**, which are characterized by extremely rapid oscillations that decrease in magnitude as the time interval...

...the Japanese mathematician Kiyosi Ito. Probably his most influential contribution was the development of an **equation** that describes the evolution of a random **variable** driven by Brownian motion. Ito's Lemma, as mathematicians now call it, is a series...

...Ito's Lemma has become known as the fundamental theorem of stochastic calculus.
    Although these **mathematical** abstractions may seem far removed from the nitty-gritty world of finance, they are in...

...the U.S. Navy, who first realized in 1959 that financial market prices followed the **equations** of Brownian motion that Einstein and Wiener had forged decades earlier.
    Soon after Osborne's observation, **mathematical** techniques for analyzing Brownian motion reached business schools and economics departments, where scholars applied them...

...From there Black and Scholes backed out the option price from a parabolic partial-differential **equation** based on the premise that stock prices exhibit Brownian motion. Black held a bachelor's...

...physics and a doctorate in applied mathematics, but he was not a specialist in differential **equations** and only later learned that the **equation** he solved could be transformed into the heat-diffusion **equation** of thermodynamics, for which the solution was already known.
    ...backed securities and exotic kinds of options, which integrated well with the array of forward **contracts** , futures **contracts** and the standard options that had been trading for many years. These instruments collectively came to be known as derivatives, their **values** being derived from the **values** of stocks, bonds, currencies or commodities.
    Derivatives have become increasingly elaborate, owing not just to...

...large corporations.

    WANNA SWAP?
Much of the quantitative work in finance seeks to establish the **value** of new and oftentimes complex derivatives. One of us (Chance), for example, has recently studied...

...for a swap that involves only one payment (which, technically, would be considered a forward **contract**). For example, suppose the firm of Goldman Sachs agrees to pay an executive of Microsoft...Fama classified efficiency according to how traders react to various types of information. If the **values** of the assets being bought and sold take into account all past prices and other...
...number of transactions), the market would be, in Fama's terminology, weak-form efficient. If **values** also mirror all publicly available knowledge, the market would be semi-strong-form efficient. In...

...profits in excess of what one expects given returns on the market and the inherent **volatility** of the stock being traded. (That is, performing financial analyses of companies will not help...

...done so, and the prices of the stocks have adjusted immediately in response.) If the **values** already reflect not only all publicly available information but also all private or "insider" knowledge...

...few truly need to be able to manipulate infinite series or solve parabolic partial-differential **equations** . Nor do they need to become experts in chaos theory, Benoit Mandelbrot's now-famous...growth (top) can be determined by discounting the future payments to the present. Projecting the **value** of these anticipated rewards backward using a discount rate of 5 percent (red curves) gives...

...a similar erratic character. Thus economists frequently use the mathematics of random Brownian motion to **formulate** models for the price of various assets. Can you guess which jagged line is which...
...is provided on the final page of the article.)
    Figure 4. Black-Scholes partial differential **equation** for a "European call option" (C) governs the **value** of a **contract** to purchase a commodity or stock for the fixed price (the strike price, E) at...

...earned by an investment that is free of risk is r.
    Figure 5. Change of **variables** from v to u eliminates the last two terms from the dimensionless Black-Scholes **equation** shown opposite. This manipulation results in an equality between the first derivative in t and the second derivative in x, just as in a classical diffusion **equation** for a physical situation in which the quantity of interest, say temperature, varies in only...

...442.

    Wiener, N. 1923. Discontinuous boundary conditions and the Dirichlet problem. Transactions of the American **Mathematical** Society 25:307-314.
    Williams, J. B. 1938. The Theory of Investment **Value** . New York: North Holland.
    Wilmott, P., S. Howison and J. Dewynne. 1995. The Mathematics of...

DESCRIPTORS:
  Finance; **Mathematical** models

20/3,K/16   (Item 4 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text
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03770212   H.W. WILSON RECORD NUMBER: BGSI98020212   (USE FORMAT 7 FOR FULLTEXT)
A calculus of risk.

   (USE FORMAT 7 FOR FULLTEXT)

...ABSTRACT: those experienced by Procter & Gamble and Barings Bank and
concerns about the integrity of the **mathematical** modeling techniques that
make derivatives trading possible.
TEXT:
...   own preparations for aberrant weather. Beginning last year, an
investor could buy or sell a **contract** whose **value** depended entirely on
fluctuations in temperature or accumulations of rain, hail or snow. These
weather...

...for future claims by policyholders or a farmer to protect against crop
losses. Or the **contracts** might allow a heating oil supplier to cope with
a cash shortfall from a warmer than expected winter by purchasing a heating
degree-day floor--a **contract** that would compensate the company if the
temperature failed to fall below 65 degrees as...

...a managing director of Worldwide Weather Trading, a New York City-based
firm that writes **contracts** on rain, snow and temperature.
    Weather derivatives mark an example of the growing reach of a
discipline called financial engineering. This bailiwick of high-speed
computing and the intricate **mathematical** modeling of mathematicians,
physicists and economists can help mitigate the vagaries of running a
global...

...new products continues with increasingly sophisticated forms of
securities and derivatives--options, futures and other **contracts** derived
from an underlying asset, financial index, interest or currency exchange
rate. New derivatives will...

...enhancers, not new types of insurance. Concerns have also focused on the
integrity of the **mathematical** modeling techniques that make derivatives
trading possible.
    Despite the tarnish, financial engineering received a valentine...

...up their constituent parts. It is relatively easy to establish the price
of a futures **contract** . When the cost of wheat rises, the price of the
futures **contract** on the commodity increases by the same relative amount.
Thus, the relationship is linear. For...

...of Speculation," Louis Bachelier described a means to price options.
Remarkably, one component of the **formula** that he conceived for this
purpose anticipated a model that Albert Einstein later used in his theory
of Brownian motion, the random movement of particles through fluids.
Bachelier's **formula** , however, contained financially unrealistic
assumptions, such as the existence of negative **values** for stock prices.
    Other academic thinkers, including Nobelist Paul Samuelson, tried to

attack the problem...
...because it is contained in the quoted stock price, a critical input in the option **formula** . The market causes the price of a riskier stock to trade further below its expected future **value** than a more staid equity, and that difference serves as a discount for inherent riskiness.

Black and Scholes, with Merton's help, came up with their option-pricing **formula** by constructing a hypothetical portfolio in which ...a change of price in a stock was canceled by an offsetting change in the **value** of options on the stock--a strategy called hedging. Here is a simplified example: A...

...a stock in three months if the stock price is at or below $100. The **value** of the option might increase by 50 cents when the stock goes down $1 (because...

...the number of options--to ensure that the holdings remain without risk.

The Black-Scholes **formula** , in fact, is elicited from a partial differential **equation** demonstrating that the fair price for an option is the one that would bring a...

...the right option, investors can bet or hedge on any kind of uncertainty, from the **volatility** (up-and-down movement) of the market to the odds of catastrophic weather. An exporter...
...rather than being exposed to a sudden change in rates on the date of the **contract** 's expiration.

In the early 1970s Black and Scholes's original paper had difficulty finding...

...Political Economy in 1973, its impact on the financial markets was immediate. Within months, their **formula** was being programmed into calculators. Wall Street loved it, because a trader could solve the **equation** easily just by punching in a few **variables** , including stock price, interest rate on treasury bills and the option's expiration date. The only **variable** that was not readily obtainable was that for "market **volatility** "--the standard deviation of stock prices from their mean **values** . This number, however, could be estimated from the ups and downs of past prices. Similarly...

...a trader could enter that number into a workstation and "back out" a number for **volatility** , which can be used to judge whether an option is overpriced or underpriced relative to...

...current price of the stock in the market.

Investors who buy options are basically purchasing **volatility** --either to speculate on or to protect against market turbulence. The more ups and downs...

...be reduced to opera- tions on a pocket calculator, the mathematics behind the Black-Scholes **equation** is stochastic calculus, a descendant from the work of Bachelier and Einstein. These **equations** were by no means the standard fare in most business administration programs. Enter the Wall ...

...Management.

As part of their studies, financial engineers in training learn about the progression of **mathematical** modeling beyond the original work of Black, Scholes and Merton. The basic Black-Scholes **formula** made unrealistic assumptions about how the market operates. It takes a fixed interest rate as an input, but of course interest rates change, and that influences the **value** of an option--particularly an option on a bond. The

formula also assumes that changes in the growth rate of stock prices fall into a normal ...over the past 13 years has been to tackle the imperfections of the Black-Scholes **equation** . Derman, a native of Cape Town, South Africa, received his doctorate from Columbia University in...

...right answer was."
   Physics Versus Finance
   Much of Derman's recent work on the expected **volatility** of stock prices continues to refine the original 1973 paper. The Black-Scholes **equation** was to finance what Newtonian mechanics was to physics, Derman asserts. "Black-Scholes is sort...

...Einstein--or some unified financial theory of everything. Finance differs from physics in that no **mathematical** model can capture the multitude of ever mutating economic factors that cause major market perturbations...

...quantum electrodynamics to model market dynamics, while employing these concepts to rederive the Black-Scholes **equation** . Ilinski replaces an electromagnetic field, which controls the interaction of charged particles, with a so...

...arbitrage field that can describe changes in option and stock prices. (Trading that brings the **value** of the stock and the option portfolio into line is called arbitrage.)
   Ilinski's theory...

...dynamics dictate that any gain in a stock will be offset by the decline in **value** of the option, thereby yielding a risk-free return. Ilinski equates it with the absorption...

...field model elucidates opportunities for profit that were not envisaged by the original Black-Scholes **equation** .
   Ilinski is a member of the nascent field of econophysics, which held its first conference...

...of opinion," he says wryly.
   Whether invoking Richard Feynman or Fischer Black, the use of **mathematical** models to **value** and hedge securities is an exercise in estimation. The term "model risk" describes how different...

...for derivatives. So can inaccurate assumptions underlying the model--failing to take into account the **volatility** of interest rates during an exchange-rate crisis, for instance. Many models do not cope well with sudden alterations in the relation among market **variables** , such as a change in the normal trading range between the U.S. dollar and...and other firms adopt various means of testing, such as determining how well their models **value** derivatives for which there is a known price.
   Problems related to modeling have accounted for...

...called "First Kill All the Models." Some of the participants questioned whether the most sophisticated **mathematical** models can match traders' skill and gut intuition about market dynamics. "As models become more...

...at Berkeley has shown that traders' own rules of thumb about inferring future stock index **volatility** did better than many of the major modeling methods.
   One modeler at the session--Derman...

...something like that. We are sort of investigating imaginary worlds and

trying to get some **value** out of them and see which one best approximates our own." Derman acknowledged that every...

...creators of these newfangled instruments place the losses in broader perspective. The notional, or face, **value** of all stocks, bonds, currencies and other assets on which options, futures, forwards and swap **contracts** are derived totaled $56 trillion in 1995, according to the Bank for International Settlements. The market **value** of the outstanding derivatives **contracts** themselves represents only a few percentage points of the overall figure but an amount that...

...the news because, like an airplane crash, their losses can prove sudden and dramatic. The **contracts** can involve enormous leverage. A derivatives investor may put up only a fraction of the **value** of an underlying asset, such as a stock or a bond. A small percentage change in the **value** of the asset can produce a large percentage gain or loss in the **value** of the derivative.

To manage the risks of owning derivatives and other securities, financial houses take refuge in yet other **mathematical** models. Much of this work is rooted in portfolio theory, a statistical measurement and optimization...

...the same way as the market changes.

One hand-me-down from Markowitz is called **value** at risk. It sets forth a set of techniques that elicits a single worst-case number for investment losses. **Value** at risk calculates the probability of the maximum losses for every existing portfolio, from currency to derivatives. It then elicits a **value** at risk for the company's overall financial exposure: the worst hit that can be...

...at the University of California at Irvine, has performed a case study that shows how **value** -at-risk measures could raise warning flags to even unsophisticated investors. Members of the school...

...existed a 5 percent chance of a billion-dollar-plus loss.

Like other modeling techniques, **value** at risk has bred skepticism about how well it predicts ups and downs in the...

...a Toronto-based risk-management software company. Algorithmics and other firms go beyond the simplest **value** -at-risk methods by providing banks with software that can "stress- ...better choice if demand grows more slowly than expected. Option-pricing techniques can place a **value** on the flexibility provided by the slow-growth path.

The Black-Scholes model has also...

...with a general education rather than targeted training in specific skills. It reveals that the **value** of being able to change labor skills quickly as the economy shifts can exceed the...

...firms and how people organize their financial lives in general," says Nobelist Merton. Placing a **value** on the vagaries of the future may help realize the vision of another Nobel laureate...

...Sachs holds a diagram of a "tree" model he helped to create to show the **volatility** of stock index prices.

Photo/Graphic: HEDGING by buying and selling **contracts** called forwards allows a utility's electricity- generating plant to reduce uncertainties in cash flows...

...percent confidence intervals--narrows considerably with forwards (green area) as compared with operating without the **contracts** (yellow area). Forwards limit how much cash flows may fall but also restrict potential gains...

...Photo/Graphic: GROWTH in derivatives usage by insured U.S. commercial banks continues. The notional **value** represents the face **value** of the underlying asset, index or rate from which options, forwards, futures and swaps are...

DESCRIPTORS:
   Mathematical economics; Finance; Risk

20/3,K/17   (Item 5 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text
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03769429   H.W. WILSON RECORD NUMBER: BGSI98019429   (USE FORMAT 7 FOR FULLTEXT)
Do large-scale remedial and dredging events have the potential to release significant amounts of semivolatile compounds to the atmosphere?
Chiarenzelli, Jeff
Scrudato, Ronald; Bush, Brian
Environmental Health Perspectives (Environ Health Perspect) v. 106 no2
   (Feb. '98) p. 47-9
SPECIAL FEATURES: bibl   ISSN: 0091-6765
 LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 2792

   (USE FORMAT 7 FOR FULLTEXT)

TEXT:
...   24 hr; 18.0 [plus or minus] 3.2[percent] loss; n = 9) and with **variable** initial moisture content were subsequently conducted and were strongly correlated with water evaporation. The volatilized...

...occurred within the first 8 hr and ended when the sediment dried. In experiments with **variable** moisture content, an exponential increase in PCB volatilization was noted for moisture contents above 26....

...and have the highest Henry's Law constants (19).

     POSSIBLE IMPLICATIONS
These measurements of PCB **volatility** from biodegraded sediment, although based on small-scale experiments, may have implications for the handling... needed, as are new guidelines to address sample analysis and handling. We urge that the **volatility** of semivolatile compounds be considered in decisions regarding possible remedial intervention, beneficial use, and in
...

...emissions from exposed, contaminated sediments and dredged materials. 1. Experimental data in laboratory microcosms and **mathematical** modeling. J Hazard Materials 54:65-87 (1997).
     5. Majewski M, Desjardins R, Rochette P...materials--comparison of predicted and laboratory measurements for New Bedford Harbor sediment, Memorandum for Record. **Contract** No. DACW39-89-M-0207. Vicksburg, MS:U.S. Army Engineer Waterways Experiment Station, 1989...

...1974;29-32.
     23. Wania F, Mackay D. Global fractionation and cold condensation of low **volatility** organochlorine compounds in polar regions. Ambio 22:10-18 (1993).
     24. Jacobsen J, Jacobsen S...

20/3,K/18   (Item 6 from file: 98)

03532217   H.W. WILSON RECORD NUMBER: BGSA97032217   (USE FORMAT 7 FOR FULLTEXT)
Plant production and emission of volatile organic compounds.
Lerdau, Manuel
Guenther, Alex; Monson, Russ
BioScience (BioScience) v. 47 (June 1997) p. 373-83
SPECIAL FEATURES: bibl il   ISSN: 0006-3568
 LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 10141

   (USE FORMAT 7 FOR FULLTEXT)

TEXT:
...   resistance to flux of the compound from the leaf to the atmosphere. Within this simple **equation** , however, is the complexity of a wealth of physiological processes, ecological patterns, and phylogenetic constraints ...

...the leaf through which the compound diffuses (r).
    The most straightforward term in the above **equation** is VPatmosphere. Because of the high reactivity and brief lifetime of isoprenoids, this term is...

...leaves. The low atmospheric vapor pressures of the hydrocarbons can therefore be neglected, and the **equation** thus reduces to
    flux = kVPleaf/r
    and our attention can then be directed to the...

...morphological changes that occur during leaf ontogeny. That is, resistance depends primarily on leaf anatomy **parameters** that do not respond to physiologically induced changes in leaf chemistry or morphology. As with...

...of as a pathway composed of resistors in series, so that r in the first **equation** is really composed of a series of resistances whose effects are additive:
    rt = ra + rb...

...isoprene rises linearly. This change in VPleaf means that the driving force of the first **equation** increases in proportion to the increase in stomatal resistance. Thus, so long as VPleaf remains...vapor pressure and temperature. The vapor pressure of a particular monoterpene depends on both its **volatility** and its concentration in the foliage. In addition, recent studies have shown that the monoterpene...the globe.
    The forests of the eastern United States have seen two major changes since **settlement** by Europeans that have directly affected VOC emissions at a landscape scale. First, much of...

...surveys in evergreen and deciduous forests to more mechanistic studies of emission responses to environmental **parameters** . Biogenic VOC emissions are one of the most important ways in which plants affect tropospheric...isoprene above a deciduous hardwood forest. Philosophical Transactions of the Royal Society of London A **Mathematical** and Physical Sciences 350: 279-296.

    Bazzaz F. 1990. The response of natural systems to...Fall R. 1991. Isoprene and monterpene emission rate variability: observations with Eucalyptus and emission rate **algorithm** development. Journal of Geophysical Research 96: 10799-10808.

    Guenther A, Zimmerman P, Harley P, Monson...

20/3,K/19   **(Item 1 from file: 239)**
DIALOG(R)File 239:Mathsci

  03155725 MR 2001f#91041
  Nonparametric estimation of American options' exercise boundaries and call prices.
   Computational aspects of complex securities.
   Broadie, Mark (Graduate School of Business, Columbia University, New
     York, New York, 10027)
   Detemple, Jerome (Boston University, Boston, Massachusetts, 02215)
   Ghysels, Eric (Department of Economics, Pennsylvania State University,
     University Park, Pennsylvania, 16802)
   Torres, Olivier
   Corporate Source Codes: 1-CLMB-BA; 1-BOST-MG; 1-PAS-EC
   J. Econom. Dynam. Control
   Journal of Economic Dynamics & Control, 2000, 24, no. 11-12,
1829--1857. ISSN: 0165-1889 CODEN: JEDCDH
   Language: English Summary Language: English
   Subfile: MR (Mathematical Reviews) AMS
   Abstract Length: MEDIUM (17 lines)
   Reviewer: Summary

   Summary: ``Unlike European-type derivative securities, there are no simple analytic valuation **formulas** for finite-lived American options, even when the underlying asset price has constant **volatility** . The early exercise feature considerably complicates the valuation of American **contracts** . The strategy taken in this paper is to rely on nonparametric statistical methods using market...

...estimate the call prices and the exercise boundaries. A comparison is made with parametric constant **volatility** model-based prices and exercise boundaries. The paper focuses on assessing the adequacy of conventional **formulas** by comparing them to nonparametric estimates. We use daily market option prices and exercise data on the S\&P100 **contract** , the most actively traded American option **contract** . We find large discrepancies between the parametric and nonparametric call prices and exercise boundaries. We...
   Descriptors: *91B28 -Game theory, economics, social and behavioral sciences- **Mathematical** economics (For econometrics, see 62P20)-Finance, portfolios, investment

20/3,K/20   **(Item 2 from file: 239)**
DIALOG(R)File 239:Mathsci

03155683 MR 2001f#91001
Theory of financial risks.
  From statistical physics to risk management. With a foreword by Nick
Dunbar.
  Bouchaud, Jean-Philippe (Service de Physique de l'Etat Condense (SPEC),
    Commissariat a l'Energie Atomique (CEA)--Centre d'Etudes Nucleaires de
    Saclay (CENS), 91191 Gif-sur-Yvette, France)
  Potters, Marc (Ecole Centrale des Arts et Manufactures, 92290
    Chatenay-Malabry, France)
  Contributors: Dunbar, Nick
  Corporate Source Codes: F-CENS-CD; F-ECAM
  Publ: Cambridge University Press, Cambridge,
  2000, xiv+218 pp. ISBN: 0-521-78232-5
  Language: English   Summary Language: English
  Subfile: MR (Mathematical Reviews) AMS
  Abstract Length: LONG (66 lines)
  Reviewer: Epps, Thomas W. (1-VA-EC)

  ...distributions. There is a particularly insightful treatment of limit
distributions of sums of independent random **variables** , stressing (in the
finite-σ case) limitations of the Gaussian approximation in the
tails. Chapter...

  ...thick tails in the empirical marginals may to some extent arise from
stochastic variation in **volatility** , and they offer an ad hoc
discrete-time ``ARCH'' model to illustrate this effect. (Much....

  ...the effect of diversification on risk. Eschewing the standard
Gaussian-based variance, they advocate the `` **value** at risk'' concept,
which is variously interpreted as a quantile (loss **value** corresponding to
a fixed cumulative probability) or as the cumulative probability
corresponding to a fixed...

  ...assets are of the Levy form and covary. Chapter 4 treats elementary
financial derivatives---forward **contracts** and European puts and
calls---with emphasis on hedging in discrete time in incomplete markets...
  Descriptors: ...; 91B28 -Game theory, economics, social and behavioral
sciences- **Mathematical** economics (For econometrics, see 62P20)-Finance,
portfolios, investment...

  ...91B30 -Game theory, economics, social and behavioral sciences-
Mathematical economics (For econometrics, see 62P20)-Risk theory,
insurance

  20/3,K/21   (Item 3 from file: 239)
DIALOG(R)File 239:Mathsci
(c) 2004 American Mathematical Society. All rts. reserv.

  03068642 MR 2000j#91024
  **Social states of belief and the determinant of the equity risk premium
in a rational belief equilibrium.**
  Functional analysis and economic theory (Samos, 1996)
  Kurz, Mordecai (Department of Economics, Stanford University, Stanford,
    California, 94305)
  Corporate Source Codes: 1-STF-H
  1998,
  Springer, Berlin,;   171--220,,
  Language: English   Summary Language: English
  Subfile: MR (Mathematical Reviews) AMS

Abstract Length: MEDIUM (13 lines)
Reviewer: Gardner, Roy (1-IN-E)

...rational beliefs. This paper explores the implications of RBE in a
general equilibrium framework. The **mathematical** result proves that an RBE
can achieve anonymity of individual agents when the economy is...

...risk premium. In particular, the paper exhibits a class of models whose
RBE exhibit high **volatility** , a low riskless rate of return and a high
equity premium---all consistent with real...
  Descriptors: *91B02 -Game theory, economics, social and behavioral
sciences- **Mathematical** economics (For econometrics, see 62P20)-Fundamental
topics (basic mathematics, methodology; applicable to economics in general)
; 91B40 -Game theory, economics, social and behavioral sciences-
Mathematical economics (For econometrics, see 62P20)-Labor market,
contracts

 20/3,K/22   (Item 4 from file: 239)
DIALOG(R)File 239:Mathsci
(c) 2004 American Mathematical Society. All rts. reserv.

   03021523 MR 2000e#91029
   An introduction to option pricing and the mathematical **theory of risk**.
   Probability theory and applications (Princeton, NJ, 1996)
   Avellaneda, Marco
   1999,
   Amer. Math. Soc., Providence, RI,;   349--374,,
   Series: IAS/Park City Math. Ser., 6,
   Language: English   Summary Language: English
   Subfile: MR (Mathematical Reviews) AMS
   Abstract Length: LONG (27 lines)
   Reviewer: Summary

   An introduction to option pricing and the mathematical **theory of risk**.
   ...discusses the topic of option pricing with emphasis on modeling
financial risk. The Black-Scholes **formula** is derived using the classical
dynamic hedging argument. Dynamic hedging justifies the valuation of
contingent...

...to `frequential', probabilities. This still leaves open---even in the
simplest case of stock option **contracts** ---the issue of specifying the
volatility parameter or other characteristics of the model describing
the evolution of market prices. This `specification problem...

...the valuation of contingent claims under uncertainty goes far beyond the
exercise of computing expected **values** of cash-flows. After a discussion
of the classical principles of option risk-management using...

...paper draws on work with my collaborators [M. Avellaneda, A. Levy and A.
Paras, Appl. **Math** . Finance 2 (1995), 73--88; per bibl.; M. Avellaneda and
A. Paras, Appl. **Math** . Finance 3 (1996), 21--52; per bibl.; M. Avellaneda,
C. Friedman, R. Holmes and D. Samperi, ``Calibrating **volatility** surfaces
via relative entropy minimization'', Appl. **Math** . Finance 3 (1997); per
bibl.].''
   \{For the entire collection see MR 99k:60002.\} ...

 20/3,K/23   (Item 5 from file: 239)
DIALOG(R)File 239:Mathsci

02926819 MR 99h#62133
Testing option pricing models.
Statistical methods in finance
Bates, David S. (Department of Finance, University of Pennsylvania,
   Philadelphia, Pennsylvania, 19104)
Corporate Source Codes: 1-PAWH-FN
1996,
North-Holland, Amsterdam,;   567--611,,
Series: Handbook of Statist., 14,
Language: English
Subfile: MR (Mathematical Reviews)   AMS
Abstract Length: LONG (81 lines)
Reviewer: Epps, Thomas W. (1-VA-EC)

...of options on an underlying asset, such as a stock, a stock index, a
futures **contract** , or a currency, depend on the terms of the options
(maturity, strike price, timing of...

...$S\sb t;\cdot)$ is the price at t of a derivative on an asset **valued**
at $S\sb t$, and $r\sb t$ is the continuously-compounded money-market rate
...
...the derivative's relevant characteristics. In the absence of
opportunities for arbitrage, one can therefore **value** a given derivative
by specifying a valid risk-adjusted measure and carrying out the
integration...

...Brownian motion. Under these specifications (1) shows a European call
with striking price X and **value** $(S\sb T-X)\sp +$ at expiration T to
be worth $$C(S\sb t...

...X)\sp +,$$ at time $t\leq T$. Evaluating the expectation yields the
famous Black-Scholes **formula** . From this perspective one sees that testing
option pricing models under the maintained hypothesis of...

...arbitrage bounds on option prices, such as that they be worth no less
than intrinsic **value** . Turning next to tests of the Black-Scholes theory,
one notes immediately that this model...

...principal focus of analysis is on whether there is ex ante unpredictable
variation in the **volatility parameter** , σ. Both cross-section and
time-series tests have been made of whether σ's estimated
statistically from historical data correspond to the ``implicit''
volatilities deduced by equating Black-Scholes **formulas** to observed
prices. Both statistical and implicit estimates do vary over time, contrary
to the...

...cdot dt+\sigma S\sp {\rho-1}\sb t\cdot dW\sb t$, in which **volatility**
depends on the asset's current **value** ; (2) stochastic **volatility** , as
$$dS\sb t/S\sb t=r\sb t\cdot dt+\sigma\sb t...

...Brownian motions; and (3) ARCH processes for $\sigma\sb t$ in discrete
time. Besides fluctuating **volatility** , ``jump processes'' that allow
discontinuities in the process for $S\sb t$ are considered. Options priced
off mixed jump-diffusions with **parameters** estimated from past prices of
the underlying asset still have much the same biases as...

...review article is devoted to studies of what can be inferred from
implicit estimates of **parameters** , inferred by minimizing some measure of

distance between observed prices and those predicted by various pricing
formulas . **Volatility** estimates deduced from the Black-Scholes **formulas**
tend to be close to those deduced from c.e.v. and mixed jump-diffusions...

...1987 data substantial evidence of left skewness in prices of primary
assets. Tests based on **parameters** implicit in stochastic **volatility** and
jump-diffusion models have yielded mixed results as to consistency with
actual price processes...
   Descriptors: ; 90A09 -Economics, operations research, programming, games
- **Mathematical** economics (For econometrics, see 62P20)-Finance,
portfolios, investment

   20/3,K/24   (Item 6 from file: 239)
DIALOG(R)File 239:Mathsci
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   02845103 MR 98k#90014
   Mathematics of derivative securities.
   Including papers from the Bank of England Conference ``Mathematics of
Finance: Models, Theories and **Computation** '' held as part of the
Mathematical Finance Programme at the University of Cambridge, Cambridge,
May 22--June 2, 1995. Edited by M. A. H. Dempster and S. R. Pliska.
   Contributors: Dempster, M. A. H.; Pliska, S. R.
   Publ: Cambridge University Press, Cambridge,
   1997, xviii+582 pp. ISBN: 0-521-58424-8
   Series: Publications of the Newton Institute, 15.
   Language: English
   Mathematics of derivative securities; Conference: Mathematics of Finance:
Models, Theories and **Computation** ,; Cambridge, Bank of England 1995
   Subfile: MR (Mathematical Reviews) AMS
   Abstract Length: LONG (88 lines)
   Reviewer: Cvitanic, Jaksa (1-CLMB-S)

   Including papers from the Bank of England Conference ``Mathematics of
Finance: Models, Theories and **Computation** '' held as part of the
Mathematical Finance Programme at the University of Cambridge, Cambridge,
May 22--June 2, 1995. Edited by...
   Mathematics of derivative securities; Conference: Mathematics of Finance:
Models, Theories and **Computation** ,; Cambridge,
   ...J. Brennan and N. I. Crew, Hedging long maturity commodity commitments
with short-dated futures **contracts** (165--189); Fabio Mercurio and Ton C.
F. Vorst, Options pricing and hedging in discrete...

...for valuing derivatives (545--582).
   This book contains a collection of articles presented during the
Mathematical Finance Programme held from January through June 1995 at the
Isaac Newton Institute for **Mathematical** Sciences, Cambridge, England. In
particular, most of the articles were presented at the Bank of England
Conference on Mathematics of Finance: Models, Theories and **Computation** ,
held from 22 May to 2 June 1995. Chapter I contains papers that provide an
introduction to **mathematical** and probabilistic tools used in
mathematical finance, as well as economic justification for the standard
Black-Scholes model. Also discussed is...

...and hedging of American, exotic and energy options; a (by now) standard
model for fitting `` **volatility** smiles'' is described, by constructing a
diffusion process for the price of the underlying asset...

...perfect hedging is not possible. The topics include hedging long-term

commitments with short-dated **contracts** , markets with nonlinear dynamics for wealth processes, markets with constraints or transaction costs, and utility...
   Descriptors: *90A09 -Economics, operations research, programming, games- **Mathematical** economics (For econometrics, see 62P20)-Finance, portfolios, investment

20/3,K/25   **(Item 7 from file: 239)**
DIALOG(R)File 239:Mathsci

   02750492 MR 98a#90019
The statistical properties of the Black-Scholes option price.
Ncube, Mthuli (Department of Accounting and Finance, London School of
   Economics and Political Science, London, WC2A 2AE, England)
Satchell, Stephen (Trinity College, University of Cambridge, Cambridge,
   CB2 1TQ, England)
Corporate Source Codes: 4-LSE-ACF; 4-CAMBT
Math. Finance
Mathematical Finance. An International Journal of Mathematics,
Statistics and Financial Economics,   1997,   7; no. 3,   287--305. ISSN:
0960-1627
   Language: English   Summary Language: English
   Subfile: MR (Mathematical Reviews) AMS
   Abstract Length: SHORT (9 lines)
   Reviewer: Summary

   ...paper investigates the statistical properties of the Black-Scholes option price, considered as a random **variable** . The option is conditioned on the current price and/or the estimated **volatility** of the underlying security. In both cases, some exact results for the distribution functions of...
...true option price and the predicted option price are derived. Extensions to puts and American **contracts** are considered. Numerical results are presented for option prices based on **parameters** appropriate for the FTSE 100 Index.'' ...
   Descriptors: *90A09 -Economics, operations research, programming, games- **Mathematical** economics (For econometrics, see 62P20)-Finance, portfolios, investment

20/3,K/26   **(Item 8 from file: 239)**
DIALOG(R)File 239:Mathsci

   02647313 MR 97b#62161
Asymptotic filtering theory for multivariate ARCH models.
Nelson, Daniel B. (Graduate School of Business, University of Chicago,
   Chicago, Illinois, 60637)
Corporate Source Codes: 1-CHI-A
J. Econometrics
Journal of Econometrics,   1996,   71, no. 1-2,   1--47. ISSN: 0304-4076
CODEN: JECMB6
   Language: English   Summary Language: English
   Subfile: MR (Mathematical Reviews) AMS
   Abstract Length: MEDIUM (15 lines)
   Reviewer: Raj, Baldev (3-WLR-E)

   ...beta of a stock return given lagged returns on the stock, volume,

market returns, implicit **volatility** from options **contracts** , and other relevant data. We also allow for time-varying shapes of conditional densities (e...

Descriptors: ...; 90A09 -Economics, operations research, programming, games- **Mathematical** economics (For econometrics, see 62P20)-Finance, portfolios, investment

20/3,K/27   (Item 1 from file: 266)
DIALOG(R)File 266:FEDRIP
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00175518
  IDENTIFYING NO.: 0099549   AGENCY CODE: NSF
  Optimal Portfolio and Model Selection in Financial Markets
  PRINCIPAL INVESTIGATOR: Cvitanic, Jaksa
  PERFORMING   ORG.: University of Southern California, Department of Mathematics, Los Angeles, CA 90089-1113
  PROJECT MONITOR: Pang, Jong-Shi
  SPONSORING ORG.: National Science Foundation, DMS, 4201 Wilson Boulevard , Arlington, Virginia 22230
  DATES: 20010815 TO 20040731   FY : 2001   FUNDS: $180,000 (100000)

  SUMMARY: Pang, Jong-Shi From: Jaksa Cvitanic [cvitanic@ **math** .usc.edu]
Sent: Monday, July 02, 2001 4:33 AM To: Pang, Jong-Shi Subject...

... Research is proposed on various aspects of the modern theory of financial markets and related **mathematical** problems of stochastic analysis, filtering and control. Issues that will be studied involve: (i) finding...

... Calculus; (ii) questions on maximizing Stochastic Differential Utility and connections to Forward-Backward Stochastic Differential **Equations** and problems of incomplete/asymmetric information; (iii) analytical and numerical methods for finding optimal portfolio...

...minimization in general semimartingale models of markets with frictions; (v) filtering and calibration of stochastic **volatility** models; (vi) optimal design of executive compensation. It is expected that tools from stochastic analysis...

... theory has been developed in almost full generality by now. However, it depends on a **mathematical** model of the markets, and our ability to estimate the model **parameters** . For example, correct pricing of complex financial **contracts** , such as exotic options, depends on how well we can estimate the " **volatility** " (riskiness) of the stock on which the option is written. One of the problems we...
?

? t9/3,k/all

9/3,K/1
DIALOG(R)File 239:Mathsci

03427135 MR 2003h#91069
Contingent claim approach for analyzing the credit risk **of defaultable currency swaps.**
Applied probability (Hong Kong, 1999)
Yu, Hong (Department of Information Systems, School of Computing,
  National University of Singapore, Kent Ridge, Singapore 0511,
  Singapore)
Kwok, Yue Kuen (Department of Mathematics, Hong Kong University of
  Science and Technology, Kowloon, Peoples Republic of China)
Corporate Source Codes: SGP-SING-ISC; PRC-HKST
2002,
Amer. Math. Soc., Providence, RI,;   79--92,,
Series: AMS/IP Stud. Adv. Math., 26,
Language: English   Summary Language: English
Subfile: MR (Mathematical Reviews)   AMS
Abstract Length: MEDIUM (15 lines)
Reviewer: Summary

Contingent claim approach for analyzing the credit risk **of defaultable currency swaps.**
  Summary: ``In this paper, we analyze the credit **risk** associated with
defaultable currency swaps under the contingent claim analysis framework.
One of the swap parties is subject to intertemporal default **risk** while
the other swap party is assumed to be default free. The event triggering
the...

...to determine whether the defaultable swap party can fulfil the cashflows
associated with the swap **contract** and other financial obligations. The
impact of various clauses and **settlement** rules in the currency swap
contracts are examined. The influences of the rate **risk** on the swap
rates, as exemplified by fluctuating volatilities of the exchange rate,
varying correlation...
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